

1    【What is claimed is:】

2    1.    A transmission and reception system for data  
3    broadcast, including a transmission apparatus which  
4    transmits a data broadcasting content and a receiving  
5    apparatus which receives and presents the transmitted data  
6    broadcasting content,

7           the transmission apparatus comprising:

8           a presentation schedule time obtaining means for  
9    obtaining a presentation schedule time when the data  
10   broadcasting content is to be presented,

11          a data broadcasting content transmission means for  
12   starting to transmit the data broadcasting content before  
13   the presentation schedule time, and

14          a message transmission means for transmitting a  
15   presentation start instruction message at the presentation  
16   schedule time; and

17          the receiving apparatus comprising:

18          a data broadcasting contents reception and  
19   presentation means for receiving the transmitted data  
20   broadcasting content and invisibly presenting the data  
21   broadcasting content, the invisible presentation of the  
22   data broadcasting content meaning a state where a series  
23   of processes relating to the presentation prior to a  
24   process by which the data broadcasting content becomes  
25   visible are performed, and the broadcasting content still  
26   remains invisible, and

27          a data broadcasting contents visualization means for

28 visualizing the invisibly presented data broadcasting  
29 content, when the transmitted presentation start  
30 instruction message is received.

1 2. The transmission and reception system for data  
2 broadcast of Claim 1, wherein

3 the message transmission means transmits an  
4 invisible presentation instruction message when the data  
5 broadcasting contents transmission means starts to  
6 transmit the data broadcasting content, and

7 the data broadcasting contents reception and  
8 presentation means starts to receive the transmitted data  
9 broadcasting content when the transmitted invisible  
10 presentation instruction message is received, and  
11 invisibly presents the data broadcasting content when the  
12 reception of the data broadcasting content has been  
13 completed.

1 3. The transmission and reception system for data  
2 broadcast of Claim 2, wherein

3 the data broadcasting contents transmission means  
4 starts to transmit a preceding data broadcasting content  
5 prior to the data broadcasting content,

6 the preceding data broadcasting content includes  
7 first control information including an instruction which  
8 instructs the receiving apparatus to, when the invisible  
9 presentation instruction message is received, receive the

10 data broadcasting content and designate the data  
11 broadcasting content as an object for presentation,

12 the data broadcasting content includes image  
13 structure information and second control information, the  
14 second information including

15 (a) an instruction which instructs the receiving  
16 apparatus to, when the data broadcasting content  
17 becomes the object for presentation, form an  
18 image according to the image structure  
19 information and keep the image being in an  
20 invisible state, and

21 (b) an instruction which instructs the receiving  
22 apparatus to, when the presentation start  
23 instruction message is received, change the  
24 invisible state of the image into a visible  
25 state,

26 the data broadcasting contents reception and  
27 presentation means receives the preceding data  
28 broadcasting content, waits until the invisible  
29 presentation instruction message in accordance with the  
30 first control information is received, starts to receive  
31 the transmitted data broadcasting content when the  
32 invisible presentation instruction message is received,  
33 designates the data broadcasting content as the object for  
34 presentation when the reception of the data broadcasting  
35 content has been completed, forms the image in accordance  
36 with the second control information in the data

37 broadcasting content as the object for presentation,  
38 brings the image to an invisible state, and waits for the  
39 presentation start instruction message, and  
40 the data broadcasting contents visualization means  
41 changes the invisible state of the image into a visible  
42 state.

1 4. The transmission and reception system for data  
2 broadcast of Claim 3, wherein

3 the data broadcasting contents reception and  
4 presentation means performs processes required by the time  
5 when the image has been stored in a frame memory in  
6 accordance with the image structure information, which is  
7 realized by prohibiting signals based on the image in the  
8 frame memory from being outputted to a display apparatus  
9 connected to the receiving apparatus, relating to the  
10 invisible presentation of the data broadcasting content,  
11 and

12 the data broadcasting contents visualization means  
13 visualizes the data broadcasting content by allowing the  
14 signals based on the image in the frame memory to be  
15 outputted to the display apparatus connected to the  
16 receiving apparatus.

1 5. The transmission and reception apparatus for data  
2 broadcast of Claim 4, wherein

3 the preceding data broadcasting content further

4 includes preceding image structure information to form an  
5 image as an object for presentation,

6 the instruction in the first control information  
7 instructs, when the invisible presentation instruction  
8 message is received, to bring the visibly presented image  
9 to an invisible state, then start to receive the data  
10 broadcasting content, and designate the data broadcasting  
11 content as an object for presentation, and

12 the data broadcasting contents reception and  
13 presentation means visibly presents the image in  
14 accordance with the preceding image structure information  
15 after the preceding data broadcasting content is received,  
16 and, when the invisible presentation instruction message  
17 is received, brings the presented image in accordance with  
18 the preceding image structure information to an invisible  
19 state, and starts to receive the data broadcasting content.

1 6. The transmission and reception system for data  
2 broadcast of Claim 4, wherein

3 the preceding data broadcasting content further  
4 includes preceding image structure information in order  
5 to form an image as an object for presentation,

6 the data broadcasting contents reception and  
7 presentation means

8 (a) includes a memory which has a space where the data  
9 broadcasting content and the preceding data  
10 broadcasting content can be stored at the same

11           time,  
12           (b) receives the preceding data broadcasting content  
13           and stores the content in the memory, and then  
14           visibly presents the image in accordance with the  
15           preceding image structure information, and  
16           (c) when the invisible presentation instruction  
17           message is received, starts to receive the data  
18           broadcasting content and store the content in the  
19           memory, and, when the storage of the content in the  
20           memory has been completed, erases the image  
21           presented in accordance with the preceding image  
22           structure information.

1   7.   The transmission and reception system for data  
2   broadcast of Claim 3, wherein  
3           the data broadcasting contents transmission means  
4   further multiplexes video stream data, in which (a) visual  
5   data making up a first broadcast program whose content  
6   relates to the preceding data broadcasting content and (b)  
7   visual data making up a second broadcast program whose  
8   content relates to the data broadcasting content are  
9   continuously constructed, with the preceding data  
10   broadcasting content and the data broadcasting content,  
11   and transmits the multiplexed data,  
12           the presentation schedule time is determined in  
13   advance so as to be concurrent with the time when the  
14   receiving apparatus is due to start to present the visual

15 data making up the second broadcast program in the video  
16 stream data, and

17 the data broadcasting contents reception and  
18 presentation means further receives the transmitted video  
19 stream data and presents the broadcast program made up of  
20 each of the video stream data.

1 8. The transmission and reception system for data  
2 broadcast of Claim 3, wherein

3 the data broadcasting contents transmission means  
4 repeatedly transmits each of the preceding data  
5 broadcasting content and the data broadcasting content.

1 9. The transmission and reception system for data  
2 broadcast of Claim 2, wherein

3 the data broadcasting contents transmission means  
4 further multiplexes video stream data consisting of visual  
5 data making up a broadcast program whose content relates  
6 to the data broadcasting content with the data broadcasting  
7 content, and transmits the multiplexed data,

8 the presentation schedule time is determined in  
9 advance so as to be concurrent with the time when the  
10 receiving apparatus is due to start to present the visual  
11 data making up the broadcast program in the video stream  
12 data, and

13 the data broadcasting contents reception and  
14 presentation means further receives the transmitted video

15 stream data and presents the broadcast program made up of  
16 each of the video stream data.

1 10. The transmission and reception system for data  
2 broadcast of Claim 1, wherein

3 the data broadcasting content includes an image  
4 structure information in order to form an image as an object  
5 for display,

6 the data broadcasting contents reception and  
7 presentation means performs processes required by the time  
8 when the image has been stored in a frame memory in  
9 accordance with the image structure information, which is  
10 realized by prohibiting signals based on the image in the  
11 frame memory from being outputted to a display apparatus  
12 connected to the receiving apparatus, relating to the  
13 invisible presentation of the data broadcasting content,  
14 and

15 the data broadcasting content visualization means  
16 visualizes the data broadcasting content by allowing the  
17 signals based on the image in the frame memory to be  
18 outputted to the display apparatus connected to the  
19 receiving apparatus.

1 11. The transmission and reception system for data  
2 broadcast of Claim 1,

3 the data broadcast contents reception and  
4 presentation means waits for a predetermined time as its



5 opportunity, starts to receive the transmitted data  
6 broadcasting content at the time, and, when the reception  
7 of the content has been completed, invisibly presents the  
8 data broadcasting content.

1 12. The transmission and reception system for data  
2 broadcast of Claim 1, wherein

3 the data broadcasting contents reception and  
4 presentation means, when an initial state of transmission  
5 of the data broadcasting content is detected, starts to  
6 receive the transmitted data broadcasting content, and,  
7 when the reception of the content has been completed,  
8 invisibly presents the data broadcasting content.

1 13. A transmission and reception method for data broadcast  
2 used in a system including a transmission apparatus which  
3 transmits a data broadcasting content and a receiving  
4 apparatus which receives and presents the transmitted data  
5 broadcasting content comprising:

6 a presentation schedule time obtaining step for  
7 obtaining a presentation schedule time when the data  
8 broadcasting content is to be presented;

9 a data broadcasting contents transmission step for  
10 starting to transmit the data broadcasting content before  
11 the presentation schedule time by the transmission  
12 apparatus;

13 a message transmission step for transmitting a

14 presentation start instruction message at the presentation  
15 schedule time by the transmission apparatus;

16 a data broadcasting contents reception and  
17 presentation step for receiving the transmitted data  
18 broadcasting content and invisibly presenting the data  
19 broadcasting content by the receiving apparatus, the  
20 invisible presentation of the data broadcasting content  
21 meaning a state where a series of processes relating to  
22 the presentation prior to a process by which the data  
23 broadcasting content becomes visible are performed, and  
24 the broadcasting content still remains invisible; and

25 a data broadcasting contents visualization step for,  
26 visualizing the invisibly presented data broadcasting  
27 content by the receiving apparatus, when the transmitted  
28 presentation start instruction message is received.

1 14. A transmission apparatus which transmits a data  
2 broadcasting content to a receiving apparatus which  
3 receives and presents the data broadcasting content,  
4 comprising:

5 a presentation schedule time obtaining means for  
6 obtaining a presentation schedule time when the data  
7 broadcasting content is to be presented;

8 a data broadcasting contents transmission means for

9 (a) starting to transmit a preceding data  
10 broadcasting content including first control  
11 information including an instruction which instructs

12 the receiving apparatus to, when an invisible  
13 presentation instruction message is received, start  
14 to receive the data broadcasting content and  
15 designate the data broadcasting content as an object  
16 for presentation,  
17 (b) after the start of transmission of the preceding  
18 data broadcasting content, and before the  
19 presentation schedule time,  
20 starting to transmit the data broadcasting content  
21 including image structure information in order to an  
22 image as an object for presentation and second  
23 control information,  
24 the second control information includes  
25 (a) an instruction which instructs the receiving  
26 apparatus to, when the data broadcasting content  
27 becomes the object for interpretation, form the image  
28 according to the image structure information and keep  
29 the image being in an invisible state, and  
30 (b) an instruction which instructs the receiving  
31 apparatus to, when the presentation start  
32 instruction message is received, change the  
33 invisible state of the image into a visible state;  
34 and  
35 a message transmission means for  
36 (a) transmitting the invisible presentation  
37 instruction message when the data broadcasting  
38 contents transmission means starts to transmit the

39 data broadcasting content,  
40 (b)transmitting the presentation start instruction  
41 message at the presentation schedule time.

1 15. The transmission apparatus of Claim 14, wherein  
2 the data broadcasting contents transmission means  
3 further multiplexes video stream data, in which visual data  
4 making up a first broadcast program whose content relates  
5 to the preceding data broadcasting content and visual data  
6 making up a second broadcast program whose content relates  
7 to the data broadcasting content are continuously  
8 constructed, with the preceding data broadcasting content  
9 and the data broadcasting content, and transmits the  
10 multiplexed data,

11 the presentation schedule time is determined in  
12 advance so as to be concurrent with the time when the  
13 receiving apparatus is due to start to present the visual  
14 data making up the second broadcast program in the video  
15 stream data.

1 16. The transmission apparatus of Claim 15, wherein  
2 the data broadcasting content transmission means  
3 repeatedly transmits each of the preceding data  
4 broadcasting content and the data broadcasting content.

1 17. A control program for enabling a transmission  
2 apparatus to perform a content transmission process in

3 which the transmission apparatus transmits a data  
4 broadcasting content to a receiving apparatus which  
5 receives and presents the data broadcasting content,

6 the content transmission process comprising:

7 a presentation schedule time obtaining step for  
8 obtaining a presentation schedule time when the data  
9 broadcasting content is to be presented;

10 a data broadcasting content transmission step for

11 (a) starting to transmit a preceding data  
12 broadcasting content including first control  
13 information including an instruction which instructs  
14 the receiving apparatus to, when an invisible  
15 presentation instruction message is received, start  
16 to receive the data broadcasting content and  
17 designate the data broadcasting content as an object  
18 for presentation,

19 (b) after the start of transmission of the preceding  
20 data broadcasting content, and before the  
21 presentation schedule time,

22 starting to transmit the data broadcasting content  
23 including image structure information in order to an  
24 image as an object for presentation and second  
25 control information,

26 the second control information includes

27 (a) an instruction which instructs the receiving  
28 apparatus to, when the data broadcasting content  
29 becomes the object for interpretation, form the image

30 according to the image structure information and keep  
31 the image in an invisible state, and  
32 (b)an instruction which instructs the receiving  
33 apparatus to, when the presentation start  
34 instruction message is received, change the  
35 invisible state of the image into a visible state;  
36 and  
37 a message transmission step for  
38 (a)transmitting the invisible presentation  
39 instruction message when the data broadcasting  
40 contents transmission means starts to transmit the  
41 data broadcasting content,  
42 (b)transmitting the presentation start instruction  
43 message at the presentation schedule time.